GALLIPOLIS LOCKS AND DAM , DAM
~~10 miles below Gallipolis, Ohio~~ Across Ohio R.
Gallipolis vicinity
Mason County
West Virginia

HAER No. WV-58-A

HAER
WVA
27-GALIPV,
1A-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, P.A. 19106

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HISTORIC AMERICAN ENGINEERING RECORD

GALLIPOLIS LOCKS AND DAM, DAM

HAER No. WV-58-A

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|---|---|
| Location: | ~~10 miles below Gallipolis, Ohio~~ across Ohio R. Gallipolis vicinity, Mason County West Virginia |
| Dates of Construction: | 1935-1937 |
| Present Owner: | U.S. Army Corps of Engineers |
| Present Use: | Locks and Dam on Ohio River |
| Significance: | The dam consists of eight bays with moveable gates. The roller gates are the most important engineering feature of the site and are the largest in the country. |
| Project Information: | See HAER No. WV-58. |

**Dam**

Dams are man-made hydraulic devices used to increase water levels behind the structure. The water behind the dam may be used for the generation of hydroelectric power, for irrigation, flood control, low water augmentation on navigable waterways, and to provide water for man-made canals. In the case of navigable waterways such as the Ohio River, dams provide a series of pools sometimes extending for miles. The pools form a staircase of levels along the waterway. They increase the depth of the navigable channel and eliminate obstructions, such as sandbars and rapids. Thus dams, in conjunction with locks, can provide controlled navigable channels in what might otherwise be an uncontrolled river unsuitable for navigation. The Ohio River is an outstanding example of the use of locks and dams to provide navigation throughout its length.

The dam extends from the Ohio bank to the auxiliary lock in a series of eight bays separated by concrete piers approximately 16' thick and rising 133' from their rock foundations. The eight bays provide 1132.0' of opening controlled by moveable gates 29.5' in diameter and 125.5' in length. Although popular in Europe since their introduction in 1902, roller gates have been little used in America. They were, however, used on three dams in the Kanawha and on the Gallipolis dam as part of a large reconstruction project to provide improved navigation of the Kanawha River. The roller gates used at the Gallipolis dam are the largest in the country and the most distinctive feature of the engineering works at the site. In addition to the roller gates, a Poiree needle dam is located in each bay to provide a means of controlling the pool level if the roller gates need to be repaired. The Poiree needle dams (also called Poiree Wicket dams) originated in the 19th century in France and Belgium as a way to keep the rivers open for navigation at high water instead of using the locks, which are then used only at low water. This dam system uses metal trestles, which collapse sidewise on to the dam foundation at high water. At low water the trestles are raised and boards laid across for men to walk on. The men lower wooden boards, "needles", down to rest on the upstream face of the trestles, thus forming a dam.

The machinery for raising and lowering the gates is located at the top of the piers enclosed in a concrete housing. These reinforced concrete housings have steel framed windows on the sides and downstream face of the pier. There is a door on the upstream face of the machinery housing which provides access to the walkway. The

gates are operated on a sloping rack and move by an electrically powered gear train which drives a huge sprocket chain connected to the roller gates. Access to these machinery housings is provided by a steel walkway spanning from pier to pier. The walkway is a notable feature of the roller gate dam. It is a structural steel Pratt truss with a haunched bottom chord and riveted panel joints. It has an open steel grate walkway and steel hand rails. The Dravo Contracting company of Pittsburgh was awarded the contract for the dam construction which was begun in 1935 and completed in 1937.